COMMONWEALTH OF VIRGINIA

ENERGY OPERATIONAL COMMITTEE

FINAL REPORT

September 15, 2007

Foreword

Inspired by the efforts of the Virginia General Assembly Cost Cutting Caucus (http://vacostcutting.blogspot.com/) and Executive Branch progress in formalizing and implementing performance management throughout the Commonwealth (www.vaperforms.virginia.gov), in February 2006 Governor Timothy M. Kaine, Chief-of-Staff William H. Leighty, Delegate Christopher B. Saxman and Senator Walter A. Stosch implemented the concept of Virginia state government "Operational Reviews." Co-chaired by members from the House of Delegates and Senate, and staffed by volunteer experts from the Executive Branch and private sector, each of these review teams focused on a single operational topic common to nearly every agency and institution in the Virginia state government -- specifically Energy, Fleet, Travel, Communications, Print, Mail, Solid Waste, Water, Return-to-Work and Receivables. The overall intent of each review was to develop recommendations for driving higher levels of state government performance and cost-effectiveness in its service to the citizens of Virginia. The method centered on the use of cross-boundary, collaborative teams of experts with a full appreciation of the need to improve performance across the state government enterprise.

Decisions to accept, revise or reject any recommendation presented in an Operational Review final report belong to the Operational Review Oversight Committee. This committee is currently comprised of Delegate Christopher B. Saxman (chair), Senator Emmett W. Hanger, Jr., and Secretary of Finance Jody M. Wagner. In all cases, the committee will base its decisions on the expertise and data provided in the reports in combination with expertise and data from other sources (including stakeholders) they believe to be relevant and of value to the issue(s). Their goal is to test, tune and advance the very best recommendations in an effort to improve Virginia state government performance in the most cost-effective way possible. Specific decisions to advance a recommendation are clearly subject to all applicable laws, policies and processes.

Looking forward, additional Operational Reviews may be initiated, as was recently the case for the topic of Staff Augmentation (use of temporary staff) across the Commonwealth. In all cases, new reviews must be justified to the Operational Review Oversight Committee by clearly articulating (1) the operational problem / opportunity, (2) its broad applicability across agencies, and (3) relevant data (including historical costs and performance or management difficulties) that further emphasize the need for improvement.

Introduction

The Commonwealth of Virginia has completed an Operational Review of energy use within state government. The review assessed Energy Best Practices being used by private business, Virginia agencies, other states, the federal government, and the provisions of state energy management Executive Order 48 (2007) issued by Governor Kaine. The Committee is recommending best practice initiatives that should be implemented in the Commonwealth.

An Energy Operational Review Committee of legislative leaders and in-house subject matter experts was formed to lead the energy use operational review. Senator Emmett Hanger and Delegate Harvey Morgan provided overall direction to the study while a team of seven state employees representing energy-using agencies and institutions made up the study team.

To better understand existing state energy management practices, the Committee reviewed previous assessments, projects, and initiatives, conducted interviews with external subject matter experts, and conducted interviews with existing state agency energy managers. As a result, the Committee was able to (i) identify overall costs and cost drivers, (ii) identify past and current state government practices related to energy management, (iii) identify best practices that can be applied to the Commonwealth's operations, (iv) benchmark current performance against best practices, (v) identify how we can leverage our size as a customer in the energy marketplace, and (vi) develop recommendations on how to implement best practices.

The operational review also addressed non-energy state policies and practices such as leasing, parking, and commuting that affect energy use by state employees. In order to avoid duplication of work, the Committee reached agreement with other operational review teams, such as water usage, fleets, and real estate, about where overlapping issues will be assessed. For example, the fleet management review will address gasoline purchasing and dispensing activities and other energy-savings components of state fleet operations. This review addressed broader energy issues related to transportation such as the use of alternative fuels (E-85 and biodiesel).

Executive Order 48 (EO-48), *Energy Efficiency in State Government*, was issued while the Committee undertook this study. The Order incorporates several best practices that the Committee was considering. These include a requirement for an Agency Energy Manager in those agencies with energy costs exceeding $1 million; design and construction consistent with the energy performance standards of the U.S. Green Building Council's LEED rating system (including the use of Virginia forest products with alternate certification) or the United States Environmental Protection Agency/Department of Energy's "Energy Star" rating; to maximize biodiesel and ethanol use in state fleet vehicles; to lease space within a quarter mile of a bus, trolley, Metro or commuter rail stop; and to purchase ENERGY STAR rated appliances.

The Committee held 16 meetings with subject matter experts from the public and private sector to gain knowledge and expertise on energy best practices. Based on those discussions, the Committee developed a list of recommendations that are discussed in this report. This Committee believes these recommendations will lead to an implementation phase that should be

followed by an evaluation and revision process to optimize energy efficiency in state facility operations.

Energy Costs and Cost Drivers

Virginia state agencies and institutions spent approximately $243 million in 2006 to operate their facilities. This has increased from approximately $162 million in 2002. This is an average 12% per year growth. Commonwealth agencies and institutions also spent nearly $74 million in 2006 to repair and maintain energy-using electrical and mechanical equipment. This increased from approximately $66 million in 2002, or by approximately 3% per year. Year-by-year energy costs in state facilities, as reported by the Department of Accounts (DOA), are provided in Appendix 1.

The largest cost driver is the increased commodity cost of energy. The largest commodity cost increase was in natural gas as a result of disruption of wells and transportation pipelines from the 2005 Gulf of Mexico hurricanes, competition for available gas by peaking electric generation units, and a decrease in total domestic gas production. We expect the commodity cost of energy to continue to increase for the foreseeable future. As an example, the fuel surcharge for Dominion Virginia Power accounts in FY 2008 will increase by approximately $8 million.

Another driver of increased energy cost is the growth in state building square footage. The Commonwealth inventory of buildings is increasing in size, requiring more energy.

The Commonwealth's inventory is also getting older, requiring increased repair and maintenance costs. It is estimated that repair and maintenance costs will continue to increase each year at the same relatively constant rate.

While not directly addressed in this operational review, the Commonwealth spent approximately $48 million in 2006 for gasoline and diesel fuel. This increased from $24 million in 2002, or by an average of 25% per year. Gasoline and diesel use concerns are being addressed in the fleet management operational review.

Best Practices Being Used in State Facilities

A number of agencies and institutions within state government have aggressively pursued energy best practices. These provide a starting point for identifying best practices for use by all agencies and institutions.

1. Energy savings performance contracting is currently the most popular option for agencies to implement energy efficiency projects. Approximately 25 state agencies are taking advantage of energy savings performance contracting. As a result, over $110 million of energy savings actions are in process in state facilities. It is estimated that these projects will provide over $7 million in savings each year, resulting in a simple payback of about 14.4 years per project.

   Other agencies have used a mix of internal and external funds to implement energy savings actions. They have used maintenance reserve, capital funding, and funds from other sources for agency energy projects. The advantage of direct funding is that all cost savings realized from the upgrade are immediately available to the agency. Generally, agencies are able to implement relatively inexpensive, simple efficiency measures that are likely to pay for themselves in about a year using internal funds. When combined with external funding for longer-term projects, an agency can reduce the funds that must be borrowed and therefore retain a higher percentage of savings. The Virginia Community College System is a good example, using performance contracting across its 40 campuses combined with internal funds to supplement under-funded projects for a more comprehensive renovation of existing plant and equipment.

   DMME has one staff person who assists agencies with performance contracting. This assistance includes project development, back-of-the-envelope opportunity review, measurement and verification assistance, and identifying additional projects for energy savings. DMME is reaching out to agencies that do not currently have a performance contract in place. This type of support will provide additional savings to the Commonwealth in the future as more performance contracts are implemented.

2. Executive Order 54, *Energy Efficiency in State Government*, issued by former Governor Warner in 2003, directed state facilities to reduce their energy consumption by 10% by 2006 based on a 2002 baseline. In the Executive Order, DMME was required to report on agency progress toward meeting this goal. By 2006, 17 state agencies met or exceeded the 10% goal.

3. The Commonwealth is among the largest user of energy in the state. A best practice being used today is leveraging the buying power of the Commonwealth through state contracts for natural gas, heating oil, and for most of the electricity used in state facilities. These contracts provide energy to state facilities at rates that are at or below what most private businesses pay.

4. The Association of Physical Plant Administrators (APPA), which promotes best practices, is used by many of Virginia's higher education agencies to train personnel involved in energy management. APPA offers its Institute for Facilities Management course twice a year through which facility personnel are trained to improve their knowledge of operation and maintenance procedures, energy conservation fundamentals, new technologies, and other skills to improve building performance. Many of the higher education facilities managers across the Commonwealth are APPA certified and are implementing the methods and practices learned through the APPA institute to improve the operation of their facilities.

5. Designating an agency energy manager is a best practice critical to ensuring efficient use of energy in state facilities. Energy savings initiatives are most successful with a champion. Approximately 25 agencies in the Commonwealth have a dedicated staff person focusing primarily on energy savings projects. It is clear that agencies with dedicated staff are better able to meet the goals of the Commonwealth in reducing agency energy consumption and costs.

Best Practice Recommendations

1. Create a Virginia Energy Management Program (VEMP)

Current Situation – The Department of Mines, Minerals, and Energy (DMME) supports energy efficiency by acting as the technical specialist for statewide energy contracts, reporting on energy consumption, and supporting agencies with performance contracting projects. The Department of General Services (DGS) has three groups that work on statewide energy-related issues: the Division of Engineering and Buildings (DEB), the Bureau of Capital Outlay Management (BCOM), and the Division of Purchases and Supply (DPS). DEB administers the statewide contract for performance contracting, BCOM reviews capital projects, and DPS administers the statewide contracts for electricity, natural gas, and heating oil. All agencies may issue purchase orders against these statewide contracts. Plans for all new buildings and major renovations are reviewed by BCOM. The Department of Transportation (VDOT) handles the contract for the majority of gasoline used by state vehicles.

Facility operation and maintenance (O&M) functions are handled by individual agencies. There is little coordination of activities among agencies. Because there are no established statewide guidelines for operation and maintenance of state facilities, including training, budget development, standard maintenance schedules, etc., each agency develops and implements guidelines for its facilities. There is limited opportunity to share lessons learned across agency boundaries.

Best Practice – The best practice we recommend is the creation of a central organization with the mission to reduce energy consumption and costs associated with energy. An excellent example of this best practice is the Federal Energy Management Program.

Recommendation – A central organization patterned after the federal best practice should be formed in state government to provide energy management services to state agencies. This group would be named the Virginia Energy Management Program (VEMP). It would reside in the Department of Mines, Minerals, and Energy.

This central group would provide support, outreach, and training to agency facility staff including agency energy managers, facility operators, maintenance and operations personnel, procurement, and administrators. This group would also provide specialized technical expertise to agencies to improve their knowledge of operation and maintenance procedures, energy conservation fundamentals, new technologies, and other skills to improve building performance. VEMP would be responsible for implementing many other recommendations in this study.

A central VEMP advisory group made up of energy managers from several agencies and institutions would advise VEMP on the needs of the agencies and provide feedback on the benefit this group brings to agency operations. The group would help bring a consistent level of knowledge and technical support to all agencies. The group would direct what types of training agencies need, provide technical support on energy-related issues, facilitate communication among agencies, and orchestrate outreach to all state employees to educate them about energy conservation best practices they can use. Training could be coordinated through the Association of Physical Plant Administrators (APPA), vendors, and other training providers.

VEMP would also support new technology applications and innovative technologies such as renewable energy, smart meters, demand response, combined heat and power, and geothermal. VEMP would test new technologies, share the results with all agencies, provide support to justify any additional first costs, and provide incentives for new technology and innovation.

Other recommendations that would be implemented through the VEMP include building commissioning/re-commissioning, automated utility billing, demand response program, and encouragement of telework and use of mass transportation.

Implementation – DMME has one state-funded position supporting agencies with performance contracting and natural gas procurement and two federally funded positions supporting agency energy contracts, efficiency efforts, and energy reporting. It is recommended that the VEMP activities be funded entirely from state general funds. This would make the federally funded positions available for activities benefiting all Virginians, not just internal state government operations. The one current state-funded position would become part of the VEMP. VEMP would then consist of the following positions:

Manager – Program administration, chair utility procurement committee, chair energy manager advisory committee, manage EDI initiative contractor, and manage the commissioning/re-commissioning pilot
Demand Response Manager – Manage the statewide electrical demand response program
Performance Contracting Specialist – Support agency performance contracting projects
Coordinator – Coordinate statewide training program and EO-48 agency energy reporting
Budget – $440,136 GF per year to support the three new VEMP positions including $50,000 for agency energy manager training expenses
Manpower – 4 FTE

Benefits – The dollar benefits to the Commonwealth cannot be precisely quantified and will vary across agencies. Those agencies now following best practices will realize a small savings, while those that are not will realize larger savings. As shown in Appendix 1, the Commonwealth spent approximately $240 million on energy in FY 2006. A United States Department of Energy report notes that improved operating and maintenance can reduce energy consumption by up to 19%. Since Virginia agencies have implemented some best management practices, the Commonwealth would not see this level of savings. Reducing the federal Department of Energy estimate in half due to the previous state practices, it is estimated that state facilities could reduce energy costs by approximately $20 million per year.

2. Aggregated Procurement of Natural Gas

Current Situation – At present, some Virginia agencies and institutions procure natural gas services using the statewide natural gas marketer contract. The natural gas contract allows the use of various hedging mechanisms including seasonal natural gas storage, futures, and cap and slide. Because each individual agency procures a relatively small quantity of gas, it can only spend a limited amount of time managing the process and often does not get the best deal.

Best Practice – The best practice we recommend is to have knowledgeable energy procurement specialists procure energy for the Commonwealth. This best practice has been used in several other states including New York, Maryland, Pennsylvania, and California.

Recommendation – The Commonwealth should aggregate its natural gas needs and have centrally employed purchasing specialists purchase natural gas for all agencies. Specialists would develop and implement a procurement plan to meet agency budget requirements, lower risk, ensure adequate supply, and obtain the lowest price available.

By purchasing in blocks of 10,000 decatherms, there would be additional savings that are not available to agencies under the present structure. Additional savings can be achieved by negotiating rates with the local distribution and transmission companies providing natural gas to Commonwealth facilities. These energy specialists could also procure other energy used by state facilities including electricity from conventional sources, electricity from renewable sources, heating oil, propane, coal, and wood.

Through aggregated procurement of natural gas, the Commonwealth has the potential to avoid between $8-$10 million in natural gas costs annually based on using leveraged buying power, negotiated transport rates, and negotiated distribution rates.

Implementation – The procurement specialists could reside in VEMP within the Department of Mines, Minerals, and Energy. They would issue purchase orders using contracts put in place by the Department of Purchases and Supply. A committee chaired by the VEMP manager, the two energy procurement specialists, and the DGS/DPS utilities contract administrator would approve procurement decisions. This group will coordinate with the Department of Planning and Budget to determine how to aggregate and disburse funds to pay for the natural gas.

Budget – $279,154 GF per year to support 2 positions
Manpower – 2 FTE

Benefits – Based on FY2006 expenditures for natural gas, the estimated potential cost avoidance for the Commonwealth is $8 to $10 million. Below is a breakdown of costs that could be avoided:

$65,549,887 FY 2006 total dollars spent on natural gas (source DOA)

Estimated avoided costs:

$ 6,555,000	Commodity savings using aggregated procurement and storage
$ 394,000	Firm capacity savings due to aggregated procurement
$ 983,000	Rate reduction from state contract with transmission companies
$ 328,000	Savings from buying 10,000 decatherm blocks of gas
$ 1,966,000	Rate reduction for state contract with distribution companies
$10,226,000	Total avoided costs (approximately 15% of total costs)

3. Establish a Commissioning/Recommissioning Pilot for State-Owned Buildings

Current Situation – Studies have shown that the payback to re-commission an existing building can be as low as 8.4 months. Actual payback will vary as there is considerable variation in the level of operation and maintenance occurring in facilities. There are approximately $2.5 billion in maintenance projects with $23 million under the Energy heading in the Facility Inventory and Condition Assessment System (FICAS). This

shows that there is a large opportunity for re-commissioning in Commonwealth buildings.

Best Practice – The best practice we recommend is to periodically commission buildings in the Commonwealth inventory. This best practice has been used by the federal government and many private companies and is a proven energy savings tool.

Recommendation – The Commonwealth should implement a building commissioning/re-commissioning pilot for state facilities, with program expansion based on confirmed savings in pilot state facilities.

Implementation – This initiative would be implemented as a VEMP program and would start with a pilot program of five buildings to determine the actual payback in state buildings re-commissioning. Future re-commissioning would be funded through other energy efficiency funds.

Budget – $200,000 to pay for a re-commissioning pilot
Manpower – To be implemented using VEMP personnel

Benefits – Based on industry studies, the pilot project would result in approximately $2,000,000 in avoided costs over a 10-year term.

4. Automate Utility Billing

Current Situation – Benchmarking energy use in state facilities is very difficult to accomplish given the information available today. The Commonwealth has tried two different systems to record and benchmark state facility energy use. Both relied on manual input from state agency personnel; neither has produced accurate, organization-wide data.

Current state budget systems identify where energy dollars are spent, but not how much energy was used. The Commonwealth receives over 10,000 paper utility bills each month and the information from these bills is manually entered into the state financial system for payment.

Without consistent data it is very difficult to benchmark any program and evaluate where improvement is needed. With automated utility billing, electricity and natural gas consumption data will be available for all agencies and for benchmarking energy consumption. This data would be used to determine which buildings are poor performers and provide the necessary information to prioritize energy consumption reduction efforts.

Best Practice – The best practice we recommend is to electronically transfer energy use and cost data from energy suppliers rather than using manual data entry and populate a database for making energy conservation decisions. Numerous private companies use a centralized Electronic Data Interchange (EDI) system to manage energy bills.

Recommendation – The Commonwealth should develop an EDI system to track and manage energy consumption among Commonwealth facilities. EDI would allow the Commonwealth to begin measuring energy costs and consumption and identify performance-based energy opportunities while reducing the time needed to manually enter billing data. As the database becomes populated, it would allow the Commonwealth to use the data to evaluate, analyze, and measure building performance using the ENERGY STAR Portfolio Manager tool.

This effort should be developed to interface with the state's new Enterprise Financial System (EFS). Development of EFS will take several years and information from an EDI project is needed now to manage energy in the Commonwealth. Therefore it is recommended that an EDI project be interfaced with the existing Commonwealth Accounting and Reporting System (CARS) while EFS is in the planning stage.

The VEMP Manager would take the lead and form an implementation committee consisting of representatives from of the Department of Accounts (DOA), Department of Planning and Budget (DPB), Department of Treasury (DOT), and two agencies that will be using the system. Dominion Virginia Power would be the first utility where EDI will be implemented. EDI would then be implemented with other utility providers.

A first step would be the decision to implement EDI using primarily state resources or select a vendor to implement a system. The implementation committee would determine where the EDI program would reside, who would be responsible for operation and maintenance, how program costs would be covered, and any other issues involved in the long-term success and operation of the program.

Implementation – A plan would be developed and implemented by the EDI Implementation Committee.

> **Budget** – DMME has $230,000 from federal energy efficiency grant budgeted for this project.
> **Manpower** – To be implemented by contract managed by VEMP staff

Benefits – The Commonwealth has no mechanism to benchmark energy consumption, other than dollars. This project would give a benchmark tool that would allow accurate measurement of energy units consumed and better planning of energy savings investments. It would eliminate the need for manual entry of over 10,000 paper utility bills into the state accounting system each month, eliminate entry errors, and reduce utility late payment charges.

5. Self-fund Energy Efficiency Projects with a State Revolving Fund

Current Situation – There are a number of barriers to more widespread use of energy savings performance contracts. Universities in particular have found that significant barriers, such as the debt incurred, limit use of energy savings performance contracts. Use of operating funds limits the size of energy conservation projects. Projects that exceed $3 million are subject to the capital budget process, limiting the size of any single energy savings performance contract without crossing what agencies consider a significant barrier.

Best Practice – The best practice we recommend is to use Commonwealth funds to pay for energy efficiency projects instead of borrowing money to do these projects.

Recommendation – The Commonwealth should create a $20 million energy savings project revolving fund to finance energy projects. This fund would be administered by VEMP. Agencies would use operating budgets to pay back into the fund over an agreed-upon period from the accrued energy savings. To increase the size of the fund for future projects, a fee of 1% would be added to the amount to be repaid by the agency. An agency borrowing $2,000,000 for 5 years would repay $2,020,000 over the term of the agreement.

The Department of Planning and Budget has a streamlined approval process for approval of energy savings performance contracts above the $3 million threshold. VEMP staff would work with DPB to educate agencies on how to use the approval process to eliminate this barrier to implementing larger energy savings performance contracts.

Implementation – Agreements for use of the funds would be implemented through a Memorandum of Understanding (MOU) between DMME and the agency requesting the funds with payment by electronic funds transfer.

Budget – A one-time appropriation of $20 million
Manpower – To be implemented using VEMP and existing agency personnel

Benefits – This funding mechanism would allow the Commonwealth to "borrow from itself" because agencies would use existing funds. Based on the savings generated through avoided costs, money would be generated and distributed back into the fund for future projects.

6. Establish a State Facility Demand Response Program

Current Situation – The state has many diesel generators used for emergency electrical power. Each agency has control of its generation capacity. There is no database of the emergency generating capacity across state agencies. Agencies may also have significant loads that could be curtailed during times of peak energy demand.

There are significant opportunities in the PJM Demand Response Program with a statewide demand response program. This program would provide a financial benefit to the state and help take load off the grid in an electrical peak demand or emergency condition. There are two components of the program. One has customers reduce load only in an emergency for a fixed payment. The other has consumers reduce load on a more regular basis for an additional financial payment.

Best Practice – The best practice we recommend is to put a program in place that will allow state agencies to take advantage of the PJM Demand Response Program. This best practice is being used by both public and private organizations in the northeastern states.

Recommendation – The Commonwealth should develop a database of emergency electric generation equipment and capacity and a communication system to coordinate agency and university participation in the PJM Demand Response Program. Upon a demand peak or emergency, each agency would decide to participate in the program. The PJM demand reduction program payments would be returned to the agencies to offset other utility costs.

Implementation

Budget – There would be some expense to develop a statewide generator database and communication system for agencies to use in a peak or emergency demand control time. This task needs to be further developed to establish a budget.
Manpower – To be implemented using VEMP and existing agency personnel

Benefits – State agencies and institutions would be better prepared to help Virginia respond to an electric supply emergency and would receive a financial benefit from using existing resources. The dollar benefit cannot be defined until a database of generation assets is developed.

7. Encouragement of Telework and Use of Mass Transportation

Current Situation – Since the implementation of the telework policy went into effect in 2000, roughly 5% of state employees use a telework option. History has shown that barriers to increasing the number of employees teleworking stem from a lack of support from agency management due to untrained managers and security-related issues with remotely accessing state web tools and emails.

Best Practice – The best practice we recommend is to encourage the use of proven telework practices and technologies in the Commonwealth. This best practice is currently being used in federal government and in some state agencies. The Department of Taxation is the lead state agency piloting telework.

Recommendation – Increase the number of employees who use telework and mass transportation opportunities. This would reduce employee commute times and remove some single passenger vehicles from the road. Governor Kaine has set a goal to have 20% of state employees (roughly 23,000 out of 115,000) teleworking by 2010. Agencies should begin adopting a consistent telework policy for all eligible employees.

To ensure a successful telework policy, the Committee recommends the following steps:

a. Education is needed to increase and enhance level of training for management and employees. The Department of Human Resource Management (DHRM) should continue to work with agencies on how to adopt a policy that is consistent with state goals and initiatives. Agency managers and supervisors should take the DHRM training on how to manage teleworking employees.
b. The VITA, through its contract with Northrup Grumman, should provide technologies to teleworking state employees that allow secure access to agency automated systems.
c. Identify who is eligible (essential personnel vs. non-essential) and create/update the database of all employees for accurate tracking of telework use.

Implementation

Budget – No additional budget is required.
Manpower – No additional staff is required. The Office of Telework Promotion and Broadband Assistance and the Department of Human Resources Management are already tasked to assist agencies in implementing the new telework policy.

Benefits – Adopting a telework policy can result in reducing energy usage and environmental impacts. Teleworking can allow employees to share desks, print facilities and equipment, VITA support, and parking. More widespread use of telework can improve employee retention and attract a new workforce to state employment.

8. Agency Participation in the Virginia Environmental Excellence Program

Current Situation – In 2005, the Virginia General Assembly adopted legislation to create the Virginia Environmental Excellence Program (VEEP). This encourages superior performance through environmental management systems and pollution prevention. Currently, there are 85 state agencies participating in the program. VEEP has allowed participants to network with their peers and focus on regional environmental priorities. Agencies already implementing energy-based performance projects could easily dovetail with the VEEP program.

Best Practice – The best practice we recommend is to capitalize on the synergy between energy conservation and reducing pollution. It is clear that reducing energy consumption reduces the pollutants resulting from energy generation.

Recommendation – State agencies and institutions should be encouraged to participate in the Virginia Environmental Excellence Program to further demonstrate a commitment to enhanced performance in building operations.

Implementation – Coordinate with the Department of Environmental Quality (DEQ) to reach out to the remaining state agencies to encourage their participation in the program.

Budget – No additional funding is required.
Manpower – VEMP and the DEQ would coordinate an outreach effort to the remaining agencies.

Benefits – Dollar benefits would be hard to quantify as cost savings will vary across multiple agencies. DEQ and DMME could provide additional recognition for state agency efforts.

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APPENDIX 1 - COSTS FROM DEPARTMENT OF ACCOUNTS

Energy Costs for State Facilities

	Coal	Natural Gas	Fuel Oil	Steam	Wood Fuel	Electrical Service	
	1321	1322	1324	1325	1326	1542	Total
FY 2006	$6,067,624	$65,549,888	$14,104,367	$13,473,297	$426,177	$143,502,979	$243,124,331
FY 2005	$5,700,212	$49,226,444	$10,541,216	$7,387,113	$384,030	$134,739,219	$207,978,233
FY 2004	$4,558,747	$39,314,281	$8,109,102	$6,571,215	$338,827	$125,817,958	$184,710,130
FY 2003	$4,247,158	$33,610,413	$7,641,546	$4,308,555	$285,033	$125,875,819	$175,968,523
FY 2002	$4,415,295	$24,932,681	$4,282,159	$4,516,517	$363,580	$123,071,071	$161,581,303
5 Year Total	$24,989,037	$212,633,706	$44,678,390	$36,256,696	$1,797,647	$653,007,046	$973,362,521

Repair and Maintenance Costs in State Facilities

	Electrical Repair/Maint Services	Electrical Repair/Maint Materials	Mechanical Repair/Maint Services	Mechanical Repair/Maint Materials	
	1252	1353	1256	1354	Total
FY 2006	$12,333,922	$13,361,591	$27,117,672	$20,813,444	$73,626,629
FY 2005	$12,821,372	$14,097,967	$24,319,348	$22,741,378	$73,980,064
FY 2004	$9,355,322	$12,137,278	$23,391,614	$30,433,187	$75,317,402
FY 2003	$8,205,675	$11,141,591	$24,288,096	$24,197,895	$67,833,258
FY 2002	$8,763,467	$12,224,782	$23,808,189	$20,881,061	$65,677,498
5 Year Total	$51,479,757	$62,963,209	$122,924,919	$119,066,965	$356,434,851

Object Code definitions:

1321, Coal: Include expenditures for coal or coke consumed in transportation, heating, and/or power generating plants. Include the cost of transporting the coal.

1322, Gas: Include expenditures for natural and manufactured gas consumed for cooking, heating, power generating plants, and laboratories.

1323, Gasoline: Include expenditures for diesel fuel, gasoline, or similar fuel consumed in the engines and motors of aircraft, motor vehicles, power equipment, and watercraft.

1324, Oil: Include expenditures for fuel oil, oil, and oil derivatives consumed in heating, and/or power generating plants. Include the cost of transporting the oil.

1325, Steam: Include expenditures for steam consumed in heating and/or power generating plants purchased from a second party.

1326, Wood Fuels: Include expenditures for wood products used for fuel for heating and power generating plants, to include such items as round wood, chips, sawdust, and bark. Include transportation costs.

1542, Electrical Service Charges: Include expenditures for electricity.

1252, Electrical Repair and Maintenance Services: Include expenditures for services provided to repair and maintain electrical systems (including network cabling) in buildings, shelters, towers, and on grounds.

1353, Electrical Repair and Maintenance Materials: Include expenditures for circuit breakers, circuits, electrical tape, fuses, plugs, tubes, wiring, and similar electrical repair and maintenance materials not included in the cost of the work performed under contract.

1517, Boiler and Machinery: Include expenditures for insurance coverage of energy equipment.

2133, Utilities: Include expenditures for lines and facilities (e.g., energy) used in the transmission of electricity, gas, sewer, water, and similar utilities.

2282, Fixtures: Include expenditures for electrical, heating, lighting, plumbing, and similar fixtures normally affixed to walls, floors, and ceilings.

1256, Mechanical Repair and Maintenance Services: Include expenditures for services provided to repair and maintain air conditioners, elevators, furnaces, plumbing, and other mechanical equipment.

1354, Mechanical Repair and Maintenance Materials: Include expenditures for bolts, cable, gears, nuts, pipe screws, solder, and similar mechanical repair and maintenance materials not included in the cost of work performed under contract.

Note: There may be some overlap of expenditures between steam and other fuels in cases where agencies pay for fuel to generate steam and then bill other agencies or departments for steam usage.